

### **Amendments to the Claims**

Please amend the claims as follows:

- 1 [C1] (currently amended) A process for preparing syngas, comprising:  
2 partially oxidizing a first hydrocarbon portion with oxygen in a partial  
3 oxidation reactor to produce a first reactor effluent;  
4 cooling the first reactor effluent to a temperature from 650° to 1000°C, said  
5 cooling including direct heat exchange with water introduced into the  
6 first reactor effluent as a quench fluid;  
7 supplying the cooled first reactor effluent to a reforming exchanger;  
8 passing a second hydrocarbon portion with steam through a catalyst zone in  
9 the reforming exchanger to form a second reactor effluent, wherein the  
10 first and second hydrocarbon portions are supplied in a weight ratio of  
11 from 40:60 to 60:40;  
12 discharging the second reactor effluent from the catalyst zone to form an  
13 admixture with the first reactor effluent;  
14 passing the admixture across the catalyst zone in indirect heat exchange  
15 therewith to cool the admixture and heat the catalyst zone; and  
16 collecting the cooled admixture from the reforming exchanger.
- 1 [C2] (canceled)

1 [C3] (currently amended) The process of claim 1 [[2]], wherein the first reactor  
2 effluent cooling further comprises indirect heat exchange downstream from  
3 the direct heat exchange and upstream from the reforming exchanger.

1 [C4] (currently amended) The process of claim 3, wherein the first reactor  
2 effluent cooling by indirect heat exchange comprises heating the second  
3 hydrocarbon portion upstream from the catalyst zone in a cross exchange.

1 [C5] (canceled)

1 [C6] (canceled)

1 [C7] (original) The process of claim 1, wherein the catalyst zone comprises  
2 catalyst tubes.

1 [C8] (currently amended) The process of claim 4 [[5]], wherein the second  
2 hydrocarbon portion is supplied to a tube side of the reforming exchanger  
3 and passed through the catalyst tubes.

1 [C9] (currently amended) The process of claim 8 [[5]], wherein the cooled first  
2 reactor effluent is supplied to a shell side inlet of the reforming exchanger.

1 [C10] (currently amended) The process of claim 9 [[7]], wherein the shell side  
2 inlet is adjacent an outlet end of the catalyst tubes.

1 [C11] (canceled)

1 [C12] (canceled)

1 [C13] (canceled)

1 [C14] (currently amended) An apparatus for producing syngas, comprising:  
2 partial oxidation reactor means for partially oxidizing a first hydrocarbon  
3 portion with oxygen to produce a first reactor effluent;  
4 means for cooling the first reactor effluent to a temperature from 650° to  
5 1000°C, said cooling means including means for introducing water into  
6 the first reactor effluent as a quench fluid for direct heat exchange;  
7 means for supplying the cooled first reactor effluent to a reforming  
8 exchanger;  
9 means for passing a second hydrocarbon portion with steam through a  
10 catalyst zone in the reforming exchanger to form a second reactor  
11 effluent, wherein the first and second hydrocarbon portions are supplied  
12 in a weight ratio of from 40:60 to 60:40;  
13 means for discharging the second reactor effluent from the catalyst zone to  
14 form an admixture with the first reactor effluent;  
15 means for passing the admixture across the catalyst zone in indirect heat  
16 exchange therewith to cool the admixture and heat the catalyst zone;  
17 means for collecting the cooled admixture from the reforming exchanger;  
18 and  
19 means for shift converting the collected admixture to increase hydrogen  
20 content.

[C15] (canceled)

[C16] (canceled)

[C17] (canceled)

[C18] (canceled)

[C19] (canceled)

[C20] (canceled)

[C21] (canceled)

1 [C22] (previously presented) The process of claim 1 wherein the partial oxidation  
2 reactor is a non-catalytic reactor.

1 [C23] (previously presented) The process of claim 1 wherein the partial oxidation  
2 reactor is a free flow, unpacked, non-catalytic reactor.

1 [C24] (previously presented) The process of claim 1 wherein a temperature of the  
2 first reactor effluent is greater than 1100°C.

1 [C25] (currently amended) A process for preparing a hydrogen-rich syngas,  
2 comprising:

3 partially oxidizing a first hydrocarbon portion with oxygen in a non-catalytic

4 partial oxidation reactor to produce a first reactor effluent having a

5 temperature greater than 1100°C;

6 cooling the first reactor effluent to a temperature from 650° to 1000°C;

7 said cooling including:

8                   direct heat exchange with water introduced into the first reactor  
9                   effluent as a quench fluid; and  
10                  indirect heat exchange in a cross exchange downstream from the  
11                  direct heat exchange and upstream from the reforming  
12                  exchanger comprising heating the second hydrocarbon portion  
13                  upstream from the catalyst zone;  
14       supplying the cooled first reactor effluent to a reforming exchanger;  
15       passing a second hydrocarbon portion with steam through a catalyst zone in  
16       the reforming exchanger to form a second reactor effluent, wherein the  
17       first and second hydrocarbon portions are supplied in a weight ratio of  
18       from 40:60 to 60:40;  
19       discharging the second reactor effluent from the catalyst zone to form an  
20       admixture with the first reactor effluent;  
21       passing the admixture across the catalyst zone in indirect heat exchange  
22       therewith to cool the admixture and heat the catalyst zone; and  
23       collecting the cooled admixture from the reforming exchanger.

1   [C26] (canceled)

1   [C27] (canceled)

1   [C28] (canceled)

1   [C29] (canceled)

1 [C30] (canceled)

1 [C31] (previously presented) The process of claim 25, wherein the catalyst zone  
2 comprises catalyst tubes.

1 [C32] (currently amended) The process of claim 31 [[29]], wherein the second  
2 hydrocarbon portion is supplied to a tube side of the reforming exchanger  
3 and passed through the catalyst tubes.

1 [C33] (currently amended) The process of claim 32 [[29]], wherein the cooled first  
2 reactor effluent is supplied to a shell side inlet of the reforming exchanger.

1 [C34] (currently amended) The process of claim 33 [[31]], wherein the shell side  
2 inlet is adjacent an outlet end of the catalyst tubes.

1 [C35] (canceled)

1 [C36] (canceled)

1 [C37] (canceled)

1 [C38] (new) The process of claim 1, wherein the partial oxidation reactor,  
2 catalytic reactor and the cooling of the first reactor effluent are operated to  
3 favor hydrogen production over carbon monoxide production.

1 [C39] (new) The process of claim 1, further comprising shift converting the  
2 collected admixture to increase hydrogen content.

1 [C40] (new) The process of claim 1, wherein the cooled first reactor effluent  
2 supplied to the reforming exchanger has a water content in excess of  
3 stoichiometric for shift conversion of CO.

Respectfully submitted,

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